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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/015,610	12/12/2001	Kevin P. Baker	GNE.2830P1C52	4459

30313 7590 10/05/2004

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EXAMINER	
TURNER, SHARON L	
ART UNIT	PAPER NUMBER
1647	

DATE MAILED: 10/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/015,610	BAKER ET AL.	
	Examiner	Art Unit	
	Sharon L. Turner	1647	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 March 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *28-47* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *28-47* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *10-15-02, 11-14-02*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-27 have been canceled and claims 28-47 have been added as requested by Applicant in the Preliminary Amendment filed December 12, 2001.

Priority

2. Applicant has not complied with one or more conditions for receiving the benefit of an earlier filing date under 35 U.S.C. 119(e), 120 and 365(c) as follows:

The later-filed application must be an application for a patent for an invention which is also disclosed in the prior application (the parent or original nonprovisional application or provisional application); the disclosure of the invention in the parent application and in the later-filed application must be sufficient to comply with the requirements of the first paragraph of 35 U.S.C. 112. See *Transco Products, Inc. v. Performance Contracting, Inc.*, 38 F.3d 551, 32 USPQ2d 1077 (Fed. Cir. 1994).

Applicant's have amended the first line of the specification as directed in the preliminary amendment. The amendment identifies multiple applications upon which priority is claimed. Applicant's have also submitted a priority map that identifies particular applications in which PRO1306 (SEQ ID NO's:109-110) are disclosed. Utility is granted based upon detection in the Fetal Hemoglobin Induction in an Erythroblastic Cell Line assay (107) as set forth herein. Disclosure of PRO 1306 utility in this assay is first identified within PCT/US00/04342 filed 2-18-00. Accordingly the effective filing date for instant application is that of the PCT?US00/04342 application, specifically 2-18-2000 for which continuity is established.

Should the Applicant disagree with the Examiner's factual determination above, it

is incumbent upon the Applicant to provide the serial number and specific page numbers of any parent application filed prior to 2-18-00 which specifically supports the claim limitations for each and every claim limitation in all the pending claims which Applicant considers to have been in possession of and fully enabled for prior to 2-18-001.

Specification

3. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

4. The disclosure is objected to because it contains embedded hyperlinks and/or other form of browser-executable code. Applicant is required to delete the embedded hyperlink and/or other form of browser-executable code. See MPEP § 608.01.

Double Patenting

5. Applicant and the assignee of this application are required under 37 CFR 1.105 to provide the following information that the examiner has determined is reasonably necessary to the examination of this application. 37 CFR 1.78(b) provides that when two or more applications filed by the same applicant contain conflicting claims, elimination of such claims from all but one application may be required in the absence of good and sufficient reason for their retention during pendency in more than one application.

A sequence search of the pending and published application databases has revealed that there are a series of applications in which SEQ ID NO: 109 is present but that do not claim the polynucleotide. However, there is at least one other application

filed by the applicants which contains the polynucleotide of SEQ ID NO: 109 which is identical to the polypeptide of SEQ ID NO: 109, and which may contain possible conflicting claims. Due to the large number of applications that contain this sequence, the examiner is unable to determine if any of these applications have claims directed to this polynucleotide. Applicant is required to point out to the Examiner all double patenting issues. See MPEP § 1.105.

The applicant is reminded that the reply to this requirement must be made with candor and good faith under 37 CFR 1.56. Where the applicant does not have or cannot readily obtain an item of required information, a statement that the item is unknown or cannot be readily obtained will be accepted as a complete reply to the requirement for that item.

This requirement is a requirement set forth within the instant Office action. A complete reply to the enclosed Office action must include a complete reply to this requirement. The time period for reply to this requirement coincides with the time period for reply to the enclosed Office action.

Formal Matters

4. The deposit of biological organisms is considered by the Examiner to be necessary for enablement of the current invention (see MPEP Chapter 2400 and 37 C.F.R."1.801-1.809). Examiner acknowledges the deposit of organisms under accession number ATCC 203231 under terms of the Budapest Treaty on International Recognition of the Deposit of Microorganisms for the Purposes of Patent Procedure in compliance with this requirement (see specification, page 518).

Claim Rejections - 35 USC § 101 and § 112

6. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

5. Utility is established based upon the Fetal Hemoglobin Induction in an Erythroblastic Cell Line (Assay 107). This assay is useful for screening PRO polypeptides for the ability to induce the switch from adult hemoglobin to fetal hemoglobin in an erythroblastic cell line. Molecules testing positive in this assay are expected to be useful for therapeutically treating various mammalian hemoglobin-associated disorders such as the various thalassemias. Hemin is used in the art to induce fetal hemoglobin levels in erythroblastic cell lines, so the correct positive controls are used. Fetal hemoglobin is useful to treat sickle cell anemia (see U.S. 6184343. Gamma globin is a subunit of hemoglobin found only in fetal hemoglobin and the correct substance is being tested in the assay. Since adult hemoglobin is composed of alpha and beta subunits, and fetal hemoglobin is composed of alpha and gamma subunits, one can use fetal hemoglobin to treat any disease characterized by defective beta subunits (e.g., thalassemias).

7. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the

art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

8. Claims 28-33, 36-37 and 41-47 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The specification describes polynucleotides encoding the peptide sequence consisting of SEQ ID NO:109-110, which is shown to test positive in the fetal hemoglobin induction in an erythroblastic cell line as noted above. However, the claims as written include polynucleoitdes encoding polypeptides having at least 80-99% sequence identity with SEQ ID NO:110 and polynucleotides encoding polypeptides including or lacking various regions including; lacking its signal peptide, comprising the extracellular domain, and comprising the extracellular domain but lacking its signal peptide, and nucleic acids that hybridize but for which no particular biological activity, function or hybridization stringency conditions are recited. Further, while the specification and claims refer to Figure 110, no definitive direction is provided as to those portions of the sequence which constitute extracellular portions. Thus, the claims are directed to various generic and sub-generic recitations lacking in identified and correlative structure and function.

However, the instant disclosure of a single polynucleotide encoding a polypeptide, that of SEQ ID NO's :109-110, with no disclosed activity, does not adequately support the scope of the claimed genus, which encompasses a substantial

variety of subgenera. A genus claim may be supported by a representative number of species as set forth in *Regents of the University of California v Eli Lilly & Co,* 119F3d 1559, 1569, 43 USPQ2d 1398, 1406 (Fed. Cir. 1997), which states:

"To fulfill the written description requirement, a patent specification must describe an invention and do so in sufficient detail that one skilled in the art can clearly conclude that "the inventor invented the claimed invention". Lockwood v. American Airlines, Inc., 107 F.3d 1565, 1572, 41 USPQ2d 1961, 1966 (1997); In re Gosteli, 872 F.2d 1008, 1012, 10 USPQ2d 1614, 1618 (Fed. Cir. 1980) ("[T]he description must clearly allow persons of ordinary skill in the art to recognize that [the inventor] invented what is claimed.") Thus, an applicant complies with the written description requirement "by describing the invention, with all its claimed limitations, not that which makes it obvious," and by using "such descriptive means as words, structures, figures, diagrams, formulas, etc., that set forth the claimed invention." Lockwood, 107 F.3d 1565, 1572, 41 USPQ2d at 1966.

An adequate written description of a DNA, such as the cDNA of the recombinant plasmids and microorganisms of the '525 patent, "requires a precise definition, such as by structure, formula, chemical name, or physical properties," not a mere wish or plan for obtaining the claimed chemical invention. Fiers v. Revel, 984 F.2d 1164, 1171, 25 USPQ2d 1601, 1606 (Fed. Cir. 1993). Accordingly, "an adequate written description of a DNA requires more than a mere statement that it is part of the invention and reference to a potential method for isolating it; what is required is a description of the DNA itself." Id at 1170, 25 USPQ2d at 1606."

A description of a genus of cDNAs may be achieved by means of a recitation of a representative number of cDNAs, defined by nucleotide sequence, falling within the scope of the genus, or of a recitation of structural features common to the genus, which features constitute a substantial portion of the genus.

However, the instant specification discloses only the single sequences of SEQ ID NO:109-110 and no other members of the claimed genus sharing particular function. Given the unpredictability of homology comparisons, see in particular Skolnick et al., Trends in Biotech., 18(1):34-39, 2000 and the fact that the specification fails to provide objective evidence of any additional sequences with the same requisite function, it cannot be established that a representative number of species have been disclosed to support the genus claim. No activity is set forth for the additional sequences and there is no evidence for a correlation or nexus provided between possession of any homologous feature and any activity as noted such that it is clearly conveyed that possession of any polypeptide having such structural similarity would possess the same function. Thus, the claims lack adequate written description support.

In addition to the aforementioned defects with respect to 112, first paragraph as noted above, the following deficiencies are noted even should utility be found.

9. Claims 28-33, 36-37, and 41-47 are rejected under 35 U.S.C. 112, first paragraph, because the specification does not reasonably provide enablement for the variable encoding sequences and for such generic sequences where no requisite functional activity is provided as claimed. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make

and use the invention commensurate in scope with these claims.

The specifications disclosure is insufficient to enable one skilled in the art to practice the invention as broadly claimed without undue experimentation. The factors relevant to this discussion include the quantity of experimentation necessary, the lack of working examples, the unpredictability of the art, the lack of sufficient guidance in the specification and the breadth of the claims.

The skilled artisan readily recognizes that protein chemistry is an unpredictable area of biotechnology. Proteins with replacement of single amino acid residues may lead to both structural and functional changes in biological activity and immunological recognition, see in particular Skolnick et al., Trends in Biotech., 18(1):34-39, 2000. For example, Jobling et al, Mol. Microbiol., 1991, 5(7):1755-67 teaches a panel of single amino acid substitutions by oligonucleotide directed mutagenesis which produce proteins that differ in native conformation, immunological recognition, binding and toxicity, thus exemplifying the importance of conserved structural components to both biological function and immunological recognition.

Instant specification discloses identification of SEQ IDNO:109 in the fetal hemoglobin induction assay but no other activity associated with the structure and function of the molecule that is noted to encode SEQ ID NO:110. However, the specification further fails to note such conserved activities in any 80-99% variable molecule and fails to teach the significance or use of such modified sequences. However, applicants claims are directed to peptides with 80-99% homology, to extracellular domains and to sequences lacking the signal peptide where no requisite

function is required.

The specification does not enable this broad scope of the claims that encompasses a multitude of analogs or equivalents because the specification does not teach which residues can or should be modified such that the polynucleotides encoding the polypeptides retain sufficient structural similarity to evoke activity. The specification provides essentially no guidance as to which of the essentially infinite possible choices is likely to be successful and the skilled artisan would not necessarily expect functional conservation among homologous sequences. Moreover, no similar function is required of the additional sequences. The artisan would be unable to determine how to use such similar sequences that lack common function. The additional members would require further experimentation to discover their requisite use. Thus, applicants have not provided sufficient guidance to enable one skilled in the art to make and use the claimed derivatives in a manner reasonably correlated with the scope of the claims.

The scope of the claims must bear a reasonable correlation with the scope of enablement (In re Fisher, 166 USPQ 19 24 (CCPA 1970)). Without such guidance, the changes which can be made and still maintain activity/utility is unpredictable and the experimentation left to those skilled in the art is unnecessarily, and improperly, extensive and undue. See Ex parte Forman, 230 USPQ 546 (Bd. Pat. App. & Int. 1986).

Thus, in view of the quantity of experimentation necessary, the lack of working examples, the unpredictability of the art, the lack of sufficient guidance in the specification and the breadth of the claims the artisan cannot make and use the

invention without undue experimentation.

10. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

11. Claims 28-47 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 28-47 are directed to isolated peptides comprising "the extracellular domain" and "lacking its associated signal peptide". The specification generally teaches that the PRO "extracellular domains" are a form of the PRO polypeptide "which is essentially free of the transmembrane and cytoplasmic domains." Yet Figure 110 fails to teach any extracellular residues. There is no description of the folded protein, extracelluar sequences or regions of the peptide which would be extracellular. These limitations cannot be read into the claims and the specification fails to teach the orientation of the molecule with respect to the intracellular and/or extracellular portions.

Further, the claim is directed to the extracellular domain lacking its associated signal peptides. However, signal peptides are not generally considered to be "associated with" extracellular domains and indeed in this particular incidence they are not identified as being adjacent. Thus, the metes and bounds of the recitations are indefinite with respect to those residues that are intended to be included or excluded by the claim recitations and the artisan is not provided definitive guidance whereby the residues may be determined.

Moreover, the claims are drawn to hybridizing sequences and to hybridization under stringent conditions. However, hybridization is variable depending on the conditions, see in particular Sambrook et al., Cold Spring Harbor Labs 1989, pp. 9.47-9.51 and 11.48-11.49. Those conditions that are deemed to be "stringent" vary in the art and are undefined in the specification. Accordingly, the metes and bounds of the residues included or excluded by the noted recitations is indefinite. Clarification of the particular amino acids and hybridization conditions are required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 28-31, 41-47 are rejected under 35 U.S.C. 102(e) as being anticipated by Hillman et al., US 6,135,941 Oct. 24, 2000.

Hillman teaches US-09-049-672A-SEQ ID NO:16 as follows.

```
; Sequence 16, Application US/09049672A
; Patent No. 6135941
;  GENERAL INFORMATION:
;    APPLICANT:  Hillman, Jennifer L.
;    APPLICANT:  Lal, Preeti
;    APPLICANT:  Tang, Y. Tom
;    APPLICANT:  Yue, Henry
;    APPLICANT:  Au-Young, Janice
;    APPLICANT:  Corley, Neil C.
;    APPLICANT:  Guegler, Karl J.
;    APPLICANT:  Baughn, Mariah R.
```

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;    TITLE OF INVENTION:  HUMAN IMMUNE SYSTEM ASSOCIATED PROTEINS
;    NUMBER OF SEQUENCES:  28
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Incyte Pharmaceuticals, Inc.
;      STREET:  3174 Porter Drive
;      CITY:  Palo Alto
;      STATE:  CA
;      COUNTRY:  USA
;      ZIP:  94304
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Diskette
;      COMPUTER:  IBM Compatible
;      OPERATING SYSTEM:  DOS
;      SOFTWARE:  FastSEQ for Windows Version 2.0
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/09/049,672A
;      FILING DATE:  HEREWITH
;      CLASSIFICATION:  536
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:
;      FILING DATE:
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Cerrone, Michael C
;      REGISTRATION NUMBER:  39,132
;      REFERENCE/DOCKET NUMBER:  PF-0497 US
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  650-855-0555
;      TELEFAX:  650-845-4166
;      TELEX:
;  INFORMATION FOR SEQ ID NO:  16:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  3449 base pairs
;      TYPE:  nucleic acid
;      STRANDEDNESS:  single
;      TOPOLOGY:  linear
;    IMMEDIATE SOURCE:
;      LIBRARY:  BLADNOT04
;      CLONE:  1320068
US-09-049-672A-16

  Query Match             97.3%;  Score 1445.6;  DB 3;  Length 3449;
  Best Local Similarity   99.7%;  Pred. No. 0;
  Matches 1459;  Conservative    0;  Mismatches    4;  Indels    1;  Gaps
1;

Qy          7 ACACGCAGCTAGCCGGAGCCCGGACCAGGCGCCTGTGCCTCCTCCTCGTCCCTCGCCGCG 66
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db          1 ACACGCAGCTAGCCGGAGCCCGGACCAGGCGCCTGTGCCTCCTCCTCGTCCCTCGCCGCG 60

Qy         67 TCCGCGAAGCCTGGAGCCGGCGGGAGCCCCGCGCTCGCCATGTCGGGCGAGCTCAGCAAC 126
              || ||||| |  |||||||||||||| ||||||||||||||||||||||||||||||||
Db         61 TCTGCGAACCTGGGAGCCGGCGGGAG-CCCGCGCTCGCCATGTCGGGCGAGCTCAGCAAC 119

Qy        127 AGGTTCCAAGGAGGGAAGGCGTTCGGCTTGCTCAAAGCCCGGCAGGAGAGGAGGCTGGCC 186
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Db        120 AGGTTCCAAGGAGGGAAGGCGTTCGGCTTGCTCAAAGCCCGGCAGGAGAGGAGGCTGGCC 179

Qy        187 GAGATCAACCGGGAGTTTCTGTGTGACCAGAAGTACAGTGATGAAGAGAACCTTCCAGAA 246

Db        180 GAGATCAACCGGGAGTTTCTGTGTGACCAGAAGTACAGTGATGAAGAGAACCTTCCAGAA 239

Qy        247 AAGCTCACAGCCTTCAAAGAGAAGTACATGGAGTTTGACCTGAACAATGAAGGCGAGATT 306

Db        240 AAGCTCACAGCCTTCAAAGAGAAGTACATGGAGTTTGACCTGAACAATGAAGGCGAGATT 299

Qy        307 GACCTGATGTCTTTAAAGAGGATGATGGAGAAGCTTGGTGTCCCCAAGACCCACCTGGAG 366

Db        300 GACCTGATGTCTTTAAAGAGGATGATGGAGAAGCTTGGTGTCCCCAAGACCCACCTGGAG 359

Qy        367 ATGAAGAAGATGATCTCAGAGGTGACAGGAGGGGTCAGTGACACTATATCCTACCGAGAC 426

Db        360 ATGAAGAAGATGATCTCAGAGGTGACAGGAGGGGTCAGTGACACTATATCCTACCGAGAC 419

Qy        427 TTTGTGAACATGATGCTGGGGAAACGGTCGGCTGTCCTCAAGTTAGTCATGATGTTTGAA 486

Db        420 TTTGTGAACATGATGCTGGGGAAACGGTCGGCTGTCCTCAAGTTAGTCATGATGTTTGAA 479

Qy        487 GGAAAAGCCAACGAGAGCAGCCCCAAGCCAGTTGGCCCCCCTCCAGAGAGAGACATTGCT 546

Db        480 GGAAAAGCCAACGAGAGCAGCCCCAAGCCAGTTGGCCCCCCTCCAGAGAGAGACATTGCT 539

Qy        547 AGCCTGCCCTGAGGACCCCGCCTGGACTCCCCAGCCTTCCCACCCCATACCTCCCTCCCG 606

Db        540 AGCCTGCCCTGAGGACCCCGCCTGGACTCCCCAGCCTTCCCACCCCATACCTCCCTCCCG 599

Qy        607 ATCTTGCTGCCCTTCTTGACACACTGTGATCTCTCTCTCTCTCATTTGTTTGGTCATTGA 666

Db        600 ATCTTGCTGCCCTTCTTGACACACTGTGATCTCTCTCTCTCTCATTTGTTTGGTCATTGA 659

Qy        667 GGGTTTGTTTGTGTTTTCATCAATGTCTTTGTAAAGCACAAATTATCTGCCTTAAAGGGG 726

Db        660 GGGTTTGTTTGTGTTTTCATCAATGTCTTTGTAAAGCACAAATTATCTGCCTTAAAGGGG 719

Qy        727 CTCTGGGTCGGGGAATCCTGAGCCTTGGGTCCCCTCCCTCTCTTCTTCCCTCCTTCCCCG 786

Db        720 CTCTGGGTCGGGGAATCCTGAGCCTTGGGTCCCCTCCCTCTCTTCTTCCCTCCTTCCCCG 779

Qy        787 CTCCCTGTGCAGAAGGGCTGATATCAAACCAAAAACTAGAGGGGGCAGGGCCAGGGCAGG 846

Db        780 CTCCCTGTGCAGAAGGGCTGATATCAAACCAAAAACTAGAGGGGGCAGGGCCAGGGCAGG 839

Qy        847 GAGGCTTCCAGCCTGTGTTCCCCTCACTTGGAGGAACCAGCACTCTCCATCCTTTCAGAA 906

Db        840 GAGGCTTCCAGCCTGTGTTCCCCTCACTTGGAGGAACCAGCACTCTCCATCCTTTCAGAA 899

Qy        907 AGTCTCCAAGCCAAGTTCAGGCTCACTGACCTGGCTCTGACGAGGACCCCAGGCCACTCT 966

Db        900 AGTCTCCAAGCCAAGTTCAGGCTCACTGACCTGGCTCTGACGAGGACCCCAGGCCACTCT 959
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Qy        967 GAGAAGACCTTGGAGTAGGGACAAGGCTGCAGGGCCTCTTTCGGGTTTCCTTGGACAGTG 026
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        960 GAGAAGACCTTGGAGTAGGGACAAGGCTGCAGGGCCTCTTTCGGGTTTCCTTGGACAGTG
1019

Qy       1027 CCATGGTTCCAGTGCTCTGGTGTCACCCAGGACACAGCCACTCGGGGCCCCGCTGCCCCA 086
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1020 CCATGGTTCCAGTGCTCTGGTGTCACCCAGGACACAGCCACTCGGGGCCCCGCTGCCCCA
1079

Qy       1087 GCTGATCCCCACTCATTCCACACCTCTTCTCATCCTCAGTGATGTGAAGGTGGGAAGGAA 146
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1080 GCTGATCCCCACTCATTCCACACCTCTTCTCATCCTCAGTGATGTGAAGGTGGGAAGGAA
1139

Qy       1147 AGGAGCTTGGCATTGGGAGCCCTTCAAGAAGGTACCAGAAGGAACCCTCCAGTCCTGCTC 206
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1140 AGGAGCTTGGCATTGGGAGCCCTTCAAGAAGGTACCAGAAGGAACCCTCCAGTCCTGCTC
1199

Qy       1207 TCTGGCCACACCTGTGCAGGCAGCTGAGAGGCAGCGTGCAGCCCTACTGTCCCTTACTGG 266
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1200 TCTGGCCACACCTGTGCAGGCAGCTGAGAGGCAGCGTGCAGCCCTACTGTCCCTTACTGG
1259

Qy       1267 GGCAGCAGAGGGCTTCGGAGGCAGAAGTGAGGCCTGGGGTTTGGGGGGAAAGGTCAGCTC 326
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1260 GGCAGCAGAGGGCTTCGGAGGCAGAAGTGAGGCCTGGGGTTTGGGGGGAAAGGTCAGCTC
1319

Qy       1327 AGTGCTGTTCCACCTTTTAGGGAGGATACTGAGGGGACCAGGATGGGAGAATGAGGAGTA 386
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1320 AGTGCTGTTCCACCTTTTAGGGAGGATACTGAGGGGACCAGGATGGGAGAATGAGGAGTA
1379

Qy       1387 AAATGCTCACGGCAAAGTCAGCAGCACTGGTAAGCCAAGACTGAGAAATACAAGGTTGCT 446
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1380 AAATGCTCACGGCAAAGTCAGCAGCACTGGTAAGCCAAGACTGAGAAATACAAGGTTGCT
1439

Qy       1447 TGTCTGACCCCAATCTGCTTGAAA 1470
              |||||||||||||||||||||||||
Db       1440 TGTCTGACCCCAATCTGCTTGAAA 1463
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Further provided are vectors comprising the nucleic acid, host cells expressing the nucleic acid and methods of making the protein, see in particular clams 1-7. Also disclosed are methods of detection using hybridizing sequences, see in particular claims 8-17. Thus, the reference teachings anticipate the claimed invention.

Conclusion

12. No claims are allowed.

13. Any inquiry of a general nature or relating to the status of this general application should be directed to the Group receptionist whose telephone number is (703) 308-0196.

Papers relating to this application may be submitted to Technology Center 1600, Group 1640 by facsimile transmission. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). Should applicant wish to FAX a response, the current FAX number for Group 1600 is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sharon L. Turner, Ph.D. whose telephone number is (571) 272-0894. The examiner can normally be reached on Monday-Friday from 8:00 AM to 4:30 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brenda Brumback can be reached at (571) 272-0961.

SHARON L. TURNER, PH.D.
PATENT EXAMINER

Sharon L. Turner, Ph.D.
September 30, 2004